

Walker-Bone K, Reading I, et al. Risk factors for specific upper limb disorders as compared with non-specific upper limb pain: assessing the utility of a structured examination schedule. *Occ Med* 2006;56:243-250.

Design: Cross-sectional survey

Brief summary of findings:

- 10,420 men and women registered with two general practices in Southampton, UK, were sent a postal questionnaire asking about current neck and upper limb pain
- 6038 persons responded to the postal questionnaire; 1413 were excluded for not working at the time, 394 were excluded for having numbness without pain, and 61 were excluded for upper limb fractures in the past 12 months; 4170 eligible respondents were then invited to an assessment by a research nurse or physiotherapist for a standardized physical examination
- The examinations included inspection and palpation of the upper extremity, with measurement of the range of shoulder and neck movements and clinical provocation tests (such as Finkelstein's)
- The questionnaire asked about occupational activities that were expected to stress the anatomical sites of the arm; the nurses and physical therapists who did the examinations were not aware of the reported exposure to occupational risk factors
- For the shoulder, the occupational activities were working with hands above shoulder level for >1 hour/day and carrying weights of >5 kg
- For the elbow, the occupational activity was repeated bending and straightening of the joint for > 1hour/day
- For the wrist, the activities were use of a keyboard for <1, 1-4, or > 4 hours per day, and other tasks involving repeated movement of the wrists or fingers for > 4 hours/day
- Cases were classified by a predefined algorithm as either having nonspecific pain at the anatomical sites, or as having a specific musculoskeletal disorder (tenosynovitis, DeQuervain's disease, osteoarthritis of the thumb or I-P joints of the hand, medial or lateral epicondylitis, rotator cuff tendonitis, biceps tendonitis, subacromial bursitis, or A-C joint dysfunction)
- Three groups of subjects were compared for analysis: (1) subjects with no neck or arm symptoms, (2) subjects with specific diagnoses, and (3) subjects with nonspecific regional pain
- Subjects who had a specific diagnosis in one site and nonspecific pain at another site were excluded from further analysis (i.e., who would be in both group 2 and group 3); there were 70 such exclusions
- Non-occupational risk factors in the analysis were age, sex, smoking habits, SF-36 score, social class, and psychosocial aspects of work (high demands, low job control, support at work)
- 2674 workers were in the final analysis: 2248 who had no symptoms, 250 with specific disorders, and 176 with only nonspecific pain

- For the elbow, there were 34 subjects with specific diagnoses and 45 with nonspecific pain; for specific elbow disorders, there were elevated odds ratios for being a blue collar worker compared with white collar (OR=2.5), for scoring in the lowest third of the SF-36 vitality scale (OR=3.5), for repeated elbow bending >1 hour per day (OR=1.8)
- At the elbow, nonspecific pain (n=45) had elevated odds ratios for low SF-36 vitality scores (OR=3.0) and for elbow bending >1 hour per day (OR=2.2)
- For the wrist, a diagnosis of tenosynovitis was present in 32 workers; odds ratios were elevated for age of 55-65 compared with age 25-44 (OR=9.1), for low SF-36 vitality score (OR=5.3), and for typing >1 hour per day (OR=3.1)
- For hand osteoarthritis (n=59), odds ratios were elevated for age 55-65 (OR=20.9), for female sex (OR=4.6) for low SF-36 vitality score (OR=4.9), for repetitive movements > 4 hours per day (OR=2.1), and for high job demands (OR=2.2)
- For nonspecific hand/wrist pain (n=102), odds ratios were elevated for low SF-36 vitality scores (OR=2.6)

Authors' conclusions:

- Most associations with physical risk factors are consistent with previous research
- Much previous research reported that nonspecific regional pain was more strongly associated with psychosocial factors (low SF-36 vitality, for example), but that specific diagnoses were less strongly associated with psychosocial factors
- The current study, by way of contrast, showed that psychological factors were associated with the specific diagnoses
- The limited power of the study sometimes resulted in wide confidence intervals and imprecise risk estimates
- Certain categories of upper extremity conditions can be usefully distinguished by structured physical examinations

Comments:

- Of the 6038 respondents, 1413 (23%) were excluded because they were not working at the time of the survey
- Many of these persons may have left work due to conditions that developed during activities at work
- These exclusions, if they were numerous, would make it more difficult to detect important associations between work activities and musculoskeletal problems
- Some of the activity categories (typing >1 hour per day) are much too broad to be of any use; similarly, repetition for > 4 hours per day is too vague and broad to define risk factors for the conditions of interest
- Most of the logistic regression analyses were done with 13 independent variables; since at least 5 (preferably 10) cases should be present for each independent variable, the precision of the analysis probably suffered

Assessment: Inadequate for evidence statements (work exposure categories are too vague and broad to be useful; the exclusion of persons not working may have missed valuable information about risk factors)